What we claim is:

1. Method of preparing monodisperse polymer particles by free radical polymerization or copolymerization of hydrophobic monomers in a water-based system in the presence of cyclodextrin, characterized in that said free radical polymerization is performed with a semi-continuous addition of monomer, which should be absent before initiating the polymerization reaction, and in that a total solid contents is present of less than 30 % by weight in said water-based system.

2. Method according to claim 1, wherein preparing monodisperse polymer particles by free radical polymerization or copolymerization of hydrophobic monomers in a water-based system proceeds in the presence of β-cyclodextrin.

3. Method according to claim 1, wherein said free-radical polymerization is initiated by a persulfate initiator.

4. Method according to claim 1, wherein said free-radical polymerization is performed via seeded emulsion or dispersion polymerization.

5. Method according to claim 1, wherein said polymerization is performed in the absence of addition of any ionic surfactant.

6. Method according to claim 1, wherein said hydrophobic monomer is a compound selected from the group consisting of styrenics, acrylonitrile, methacrylonitrile, acrylates, methacrylates, methacryl amides, acrylamides, vinylamide, maleimides; vinyl ethers, vinyl esters, monoalkylmaleates, dialkyl maleates, fluorinated acrylates, fluorinated methacrylates, dienes and derivatives thereof.

7. Method according to claim 1, wherein said hydrophobic monomer is a compound selected from the group consisting of styrene, methylmethacrylate, vinylacetate, vinyl versatate, N-phenyl maleimide, divinylbenzene, ethyleneglycol diacrylate, 2,2,2-trifluoroethylacrylate, 2,2,2-trifluoroethyl methacrylate, vinylcaprolactam, acrylonitrile, vinyl acetate, N-benzyl methacrylamide, N-benzyl maleimide and vinyl versatate.

8. Method according to claim 1, wherein said monodisperse polymer particles have an average particle size between 0.02 µm and 20 µm.

9. Monodisperse polymer particles, prepared according to the method of claim.

10. Use of monodisperse polymer particles according to claim 9, in inks or toners, in photonic crystal films, in thermal printing plates for computer-to-plate or computer-to-press applications, in inkjet media, in displays or in photographic films, or as a spacing agent.